AIR QUALITY PERMIT

Issued to: Plum Creek Manufacturing, L.P.
Columbia Falls Operations
P.O. Box 1990
Columbia Falls, Montana 59912-0160

Permit #2667-11
Application Received: 12/05/01
Application Complete: 11/01/02
Preliminary Determination Issued: 12/06/02
Department Decision Issued: 12/31/02
Permit Final: 1/16/03
AFS Number: 029-0008

An air quality permit, with conditions, is hereby granted to Plum Creek Manufacturing, L.P. (Plum Creek), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.701, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

Plum Creek's Columbia Falls facility is located in Section 7 and the SW ¼ of Section 8, Township 30 North, Range 20 West in Flathead County. The facility includes a sawmill, a planer, a plywood plant, and a medium density fiberboard (MDF) plant. The MDF plant has two production lines: Line 1 manufactures MDF through a batch press process and Line 2, through the use of a continuous press.

B. Permitted Facility

This permit is issued for all existing sources of air contaminants at the facility, including, but not limited to: two Line 1 MDF fiber dryers (core and face dryer systems) controlled by four wet electrostatic precipitators (ESPs) and heated by three sanderdust burners (the core dryer is heated by a 50-MMBtu/hr Coen Burner and the face dryer is heated by two Energex Burners); two plywood veneer dryers controlled by one wet ESP and heated by one wood waste burner; one wood-fired stoker boiler with design capacity of 170,000 pounds per hour (pph) steam controlled by one PPC Industries ESP; five sawmill and planer cyclones; one sawdust target box; seven drying kilns; two plywood plant cyclones; three plywood plant baghouses; twelve Line 1 MDF plant baghouses; one natural gas boiler with a design capacity of 20,000 pph steam; one natural gas-fired boiler with a design capacity of 22,500 pph steam; one Line 2 MDF flash tube fiber dryer controlled by two venturi scrubbers and three biofilters and heated by one 85-MMBtu/hr sanderdust burner; five Line 2 MDF plant baghouses; one Line 2 natural gas hot oil burner; and fugitive dust associated with the receiving, storing, and handling of logs and waste wood.

C. Current Permit Action

On December 5, 2001, Plum Creek submitted a New Source Review (NSR)/Prevention of Significant Deterioration of Air Quality (PSD) application for three historical projects at the Columbia Falls facility. During an independent compliance awareness review performed in 2000, Plum Creek discovered that the 1989 MDF Coen Burner Project, the 1990 MDF Line Speed Up Project, and the 1992 MDF Heating and Humidification Project should have gone through PSD permitting prior to the projects being constructed and/or implemented. Based on the PSD Significant Emission Rates, the 1989 MDF Coen Burner Project would have been subject to PSD permitting for carbon monoxide (CO) and nitrogen oxides (NO_x); the 1990 MDF Line Speed Up Project, for particulate matter (PM), PM less than 10 microns in diameter (PM-10), and volatile organic compounds

(VOCs); and the 1992 MDF Heating and Humidification Project, for PM, PM-10, and VOCs. As the Columbia Falls area (including the Plum Creek facility) was designated as a nonattainment area for PM-10 by the U.S. Environmental Protection Agency (EPA) on November 15, 1990, the 1992 project would have triggered nonattainment area NSR permitting for PM-10. This permitting action addresses the PSD permitting, including the nonattainment area NSR permitting, which should have occurred prior to construction/implementation of the above-mentioned projects.

In addition, on November 19, 2002, the Department of Environmental Quality (Department) received a request from Plum Creek to remove the requirement limiting the MDF Line 2 equipment to 8760 hours per year. As there are only 8760 hours in a year, this requirement is not necessary and will be removed.

SECTION II: Limitations and Conditions

A. Line 1 MDF Fiber Dryers

1. Hours of operation of the Line 1 MDF fiber dryers shall be limited to 8500 hr/yr (ARM 17.8.710).

2. Plum Creek shall operate and maintain the four ESPs on the Line 1 MDF fiber dryers (ARM 17.8.710).

3. Line 1 MDF fiber dryer emissions of total particulate shall be limited to 23.14 lb/hr (ARM 17.8.715).

4. Line 1 MDF fiber dryer emissions of PM-10 shall be limited to 23.14 lb/hr (ARM 17.8.715).

5. Line 1 MDF fiber dryer emissions of VOC shall be limited to 131.10 lb/hr (ARM 17.8.715).

6. Visible emissions from the Line 1 MDF fiber dryers shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

7. The initial source test of the Line 1 MDF fiber dryer ESPs was conducted on December 18-19, 1995, to demonstrate compliance with the emission limitations contained in Sections II.A.3 and 4. Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitations or another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

8. The initial VOC source test for the Line 1 MDF fiber dryers was conducted on December 18-19, 1995, to demonstrate compliance with the emission limitation contained in Section II.A.5. Plum Creek shall continue testing on an every 3-year basis to demonstrate compliance with the emission limitation or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 60, Appendix A and the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).

B. Line 2 MDF Fiber Dryers

1. Plum Creek shall install, operate, and maintain two venturi scrubbers with three biofilter stacks as control for the Line 2 MDF fiber dryers (ARM 17.8.710).

2. Plum Creek shall install, operate, and maintain a flue gas recirculation/low NO_x burner (FGR/LNB) on the heat source for the Line 2 MDF fiber dryer (ARM 17.8.715).

3. Total particulate emissions from the Line 2 MDF fiber dryer venturi scrubbers and biofilter stacks shall be limited to 21.2 lb/hr (ARM 17.8.715).

4. PM-10 emissions from the Line 2 MDF fiber dryer venturi scrubbers and biofilter stacks shall be limited to 21.2 lb/hr (ARM 17.8.715).

5. VOC emissions from the Line 2 MDF fiber dryer combined stack shall be limited to 78.1 lb/hr (ARM 17.8.715).

6. Visible emissions from the Line 2 MDF fiber dryers combined stack shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

7. The initial source test on the three Line 2 MDF fiber dryer biofilter stacks was conducted on September 11, 2002, to demonstrate compliance with the emission limitations contained in Sections II.B.3 and 4. Plum Creek shall continue testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

8. The initial source test on the three Line 2 MDF fiber dryer biofilter stacks was conducted on September 11, 2002, to demonstrate compliance with the emission limitation contained in Section II.B.5. Plum Creek shall continue testing on an every-3-year basis to demonstrate compliance with the emission limitation or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 60, Appendix A and the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).

C. Plywood Veneer Dryers

1. Plum Creek shall operate and maintain the ESP on the veneer dryers (ARM 17.8.710).

2. Plywood veneer dryer emissions of total particulate shall be limited to 10.00 lb/hr (ARM 17.8.710).

3. Plywood veneer dryer emissions of PM-10 shall be limited to 10.00 lb/hr (ARM 17.8.710).

4. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

5. The initial source test for the plywood veneer dryers was conducted on September 19, 1995, to demonstrate compliance with emission limitations contained in Section II.C.2 and 3. The testing shall continue on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

D. Riley-Union Stoker Boiler (wood-fired)

1. Plum Creek shall operate and maintain the ESP on the Riley-Union Stoker boiler (ARM 17.8.715).

2. Boiler emissions of total particulate shall be limited to 8.77 lb/hr (ARM 17.8.715).

3. Boiler emissions of PM-10 shall be limited to 6.94 lb/hr (ARM 17.8.715 and ARM 17.8.710).

4. Boiler emissions of NO_x[1] shall be limited to 134.50 lb/hr (ARM 17.8.715).

5. Boiler emissions of CO shall be limited to 468 lb/hr (ARM 17.8.715).

6. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

7. The initial source test on the wood-fired boiler ESP was conducted on July 18, 1995, to demonstrate compliance with emission limitations contained in Sections II.D.2 and 3. Plum Creek shall continue testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

8. A source test on the wood-fired boiler was conducted on July 18, 1995, to test for NO_x and CO, concurrently, and to demonstrate compliance with the emission limitations contained in Sections II.D.4 and 5. Plum Creek shall continue testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 60, Appendix A and

[1] NO_x reported as NO_2.

the Montana Source Test Protocol and Procedures Manual (ARM 17.8.105 and ARM 17.8.106).

E. Combined Sawmill and Planer Process

1. Plum Creek shall comply with the emission limitations contained in Table 1 (ARM 17.8.710).

Table 1

Emission Unit	Total Particulate Emissions	PM-10 Emissions
Planer #3 Cyclone	5.55 lb/hr	2.22 lb/hr
Planer #4 Cyclone	13.90 lb/hr	5.55 lb/hr
Planer Shavings Bin Cyclone	1.39 lb/hr	0.56 lb/hr
Planer Chip Bin Cyclone	1.39 lb/hr	0.56 lb/hr
Sawmill Chip Bin Cyclone	1.39 lb/hr	0.56 lb/hr

2. Visible emissions from all emission points contained in the combined sawmill and planer process shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

3. If any point source within the combined sawmill and planer process exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM-10 tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

F. Total Plywood Process Excluding the Veneer Dryers

1. Plum Creek shall comply with the emission limitations contained in Table 2 (ARM 17.8.710 and ARM 17.8.715).

Table 2

Emissions Unit	Total Particulate Emissions	PM-10 Emissions
Plywood Chip Bin Cyclone	1.30 lb/hr	0.52 lb/hr
Plywood Sander Dust Baghouse	1.35 lb/hr	1.35 lb/hr
Plywood 18" Trim Hog Baghouse	0.58 lb/hr	0.58 lb/hr

Plywood 30" Trim Hog Baghouse	0.58 lb/hr	0.58 lb/hr

2. Visible emissions from all emission points contained in the total plywood process, excluding the veneer dryers, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

3. If any point source within the total plywood process, excluding the veneer dryers, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM-10 tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

G. Total Line 1 MDF Process Excluding Drying

1. Hours of operation for the Line 1 MDF process shall be limited to 8500 hr/yr (ARM 17.8.710).

2. Plum Creek shall operate and maintain the Line 1 MDF materials handling baghouse (ARM 17.8.715).

3. Plum Creek shall comply with the emission limitations contained in Table 3 (ARM 17.8.715 and ARM 17.8.710).

Table 3

Emission Unit	Total Particulate Emissions	PM-10 Emissions
Line 1 MDF North Sander Baghouse #7	2.12 lb/hr	2.12 lb/hr
Line 1 MDF South Sander Baghouse #8	2.12 lb/hr	2.12 lb/hr
Line 1 MDF Board Trim Baghouse #10	0.52 lb/hr	0.52 lb/hr
Line 1 MDF Boiler Sanderdust Baghouse #11	0.84 lb/hr	0.84 lb/hr
Line 1 MDF Booksaw Baghouse #5	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Sander Hog Baghouse #6	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Metering Bin Baghouse #1	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Felter Baghouse #1	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Felter Baghouse #2	1.93 lb/hr	1.93 lb/hr
Line 1 MDF Sanderdust Fuel Baghouse	0.16 lb/hr	0.16 lb/hr

Line 1 MDF ADS Baghouse (includes both baghouses)	1.93 lb/hr	1.93 lb/hr

4. Total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 25.80 lb/hr of total particulate (ARM 17.8.715).

5. Total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 9.50 lb/hr of PM-10 (ARM 17.8.715).

6. Total combined emissions from the 6 press vent fans and the 10 board cooler fan vents shall be limited to 13.40 lb/hr of VOCs (ARM 17.8.715).

7. Visible emissions from all emission points contained in the total Line 1 MDF process, excluding drying, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

8. An initial source test for the Line 1 MDF ADS baghouse was conducted on September 19, 1995, to demonstrate compliance with the limitations contained in Table 3. Plum Creek shall continue the testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

9. If any point source within the total Line 1 MDF process, excluding drying, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM-10 tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

H. Total Line 2 MDF Process Excluding Drying

1. Plum Creek shall install, operate, and maintain the Line 2 North and South MDF Sander Baghouses (ARM 17.8.715).

2. Plum Creek shall install, operate, and maintain the Line 2 MDF Reject Baghouse and Line 2 MDF Forming Baghouse (ARM 17.8.715).

3. Plum Creek shall install, operate, and maintain the Line 2 Burner Fuel Baghouse (ARM 17.8.715).

4. Emissions from the press vents shall be routed to the venturi scrubber and biofilters (ARM 17.8.715).

5. Plum Creek shall comply with the emission limitations contained in Table 4 (ARM 17.8.715 and ARM 17.8.710).

Table 4

Emission Unit	Total Particulate Emissions	PM-10 Emissions
Line 2 MDF North Sander Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF South Sander Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF Reject Baghouse	3.43 lb/hr	3.43 lb/hr
Line 2 MDF Forming Baghouse	2.14 lb/hr	2.14 lb/hr
Line 2 MDF Coen Fuel Bin Baghouse	0.43 lb/hr	0.43 lb/hr

6. Visible emissions from all emission points contained in the total Line 2 MDF process, excluding drying, shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

7. The initial source test on the Line 2 MDF North and South Sander Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every-3-year basis to demonstrate compliance with the emission limitations contained in Table 4 or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

8. The initial source test on the Line 2 MDF Reject Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

9. The initial source test on the Line 2 MDF Forming Baghouse was conducted on September 12, 2002, to demonstrate compliance with the limitations contained in Table 4. Plum Creek shall continue the testing on an every-3-year basis to demonstrate compliance with the emission limitations or according to another testing/monitoring schedule as approved by the Department. The test methods shall conform to 40 CFR Part 51, Appendix M, including back half, for PM-10; 40 CFR Part 60, Appendix A, including back half, for total particulate; and the Montana Source Test Protocol and Procedures Manual. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

10. If any point source within the total Line 2 MDF process, excluding drying, exceeds an applicable opacity limit, the Department may require all point sources in that process to be tested to determine compliance with mass emission limits. These tests shall conform to EPA test specifications under 40 CFR 60, Appendix A, including back half. PM-10 tests shall conform to 40 CFR 51, Appendix M, including back half and the Montana Source Test Protocol and Procedures Manual. All sources where tests are required must be equipped with stacks and sampling ports, with safe access for the sampling personnel. The Department may allow a total particulate test only if the back half is included and it is acknowledged this test can be used as a surrogate for PM-10 (ARM 17.8.105 and ARM 17.8.106).

I. Fugitive Dust from Mill Vehicles and Log Yard Activity

1. A chemical dust suppressant shall be applied to the major roads on the log yard to control fugitive dust from all log-handling equipment. The application schedule shall be no less than once per year. Water sprays shall be used as necessary to control dust emissions on active areas of the log yard. The opacity of the log yard dust emissions shall not exceed 20% averaged over 6 consecutive minutes at any time (ARM 17.8.308).

2. Chemical dust suppressants shall be applied to the major haul routes throughout the plant to control fugitive dust from the haul trucks. The application schedule shall be not less than once per year. The opacity of the haul road dust emissions shall not exceed 20% averaged over 6 consecutive minutes at any time (ARM 17.8.308).

J. Plywood Natural Gas Boiler

1. Emissions of total particulate from the 20,000-pph boiler shall be limited to 0.10 lb/hr (ARM 17.8.710).

2. Emissions of PM-10 from the 20,000-pph boiler shall be limited to 0.10 lb/hr (ARM 17.8.710).

3. Visible emissions from the boiler shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

K. Combustion Engineering Natural Gas Boiler

1. Boiler emissions of total particulate shall be limited to 6.20 lb per million cubic feet of gas burned (ARM 17.8.715).

2. Boiler emissions of PM-10 shall be limited to 6.20 lb per million cubic feet of gas burned (ARM 17.8.715).

3. Visible emissions shall be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

L. Additional Testing Requirements

1. The Department may require further testing (ARM 17.8.105).

2. Plum Creek shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

M. Monitoring Requirements

No ambient monitoring is required at this time.

N. Operational Reporting Requirements

1. Plum Creek shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. Plum Creek shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(r) that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.705(1)(r)(iv) (ARM 17.8.705).

3. All records compiled in accordance with this permit must be maintained by Plum Creek as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department and must be submitted to the Department upon request (ARM 17.8.710).

4. Plum Creek shall submit the hours of operation of the Line 1 MDF plant annually to the Department by March 1 of each year; the information may be submitted with the emission inventory (ARM 17.8.505).

SECTION III: General Conditions

A. Inspection - Plum Creek shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if Plum Creek fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving the permittee of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.701, *et seq*. (ARM 17.8.717).

D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement, as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Plum Creek may be grounds for revocation of this permit, as required by, that section and rules adopted thereunder by the Board.

H. Construction commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.

Permit Analysis
Plum Creek Manufacturing, L.P.
Columbia Falls Facility
Permit #2667-11

I. Introduction/Process Description

A. Site Location

Plum Creek Manufacturing, L.P. (Plum Creek) currently operates a sawmill, planer, plywood plant, and medium density fiberboard (MDF) plant in Section 7 and the SW ¼ of Section 8, Township 30 North, Range 20 West, Flathead County, Montana, near Columbia Falls. The nearest Class I area is Glacier National Park, which is approximately 13 kilometers northeast of the facility.

B. Process Description

This facility consists of three plants, all located at the same site: the sawmill, the plywood mill, and the MDF plant. The sawmill and plywood mill receive raw logs by truck. The logs are stored and sorted before being transferred to the mill for sawing into dimension lumber or to the plywood plant for peeling into veneer. Waste wood such as chips, sawdust, and planer shavings are transferred to the MDF plant for processing into fiberboard. Wood shavings and sawdust are also received from outside facilities as raw material for the fiberboard plant. All three plants share one boiler as a source of process steam for their operations. The boiler uses wood as a fuel and burns a mixture of bark, sawdust, sanderdust, and reject material from the plywood and fiberboard operations. The veneer dryer is also heated with wood through the use of a Wellons cell. The exhaust gases from the Wellons unit make direct contact with the veneer and then exit to the atmosphere through an E-tube wet electrostatic precipitator (ESP). This scrubber was installed during the summer of 1991 and reduced veneer dryer emissions from those recorded during the study period of September 1989, through April 1990.

The fiber dryers are heated primarily with wood. Two Coen and two Energex sander dust burners heat the flash-tube dryers to dry the wood fiber for fiberboard manufacture. The dryers are controlled with long cone high-efficiency cyclones, four GeoEnergy E-tube wet ESPs, two venturi scrubbers, and three biofilters.

Fugitive emissions from wood-waste transfer are controlled with baghouses or cyclones. Fugitive emissions from haul roads and the log deck are controlled with chemical dust suppressant. The equipment associated with this facility at the time of Permit Action #2667-11 is listed below.

Permitted Process Equipment and Control Equipment:

1. The MDF fiber dryers include face and core dryer(s). The Line 1 Core dryer consists of a sanderdust Coen burner with a heating capacity of 50 MMBtu/hr. The Line 2 Core dryer consists of a sanderdust burner with a heating capacity of 85 MMBtu/hr. The two Energex face dryers are proposed to be replaced by one burner with a capacity of 50 MMBtu/hr[2]. The Line 1 MDF fiber dryers are

[2] Permit #**2667-05** permitted the replacement of the two Energex burners with one Coen burner with a capacity of 50 MMBtu/hr. Section III.H. requires construction to begin by 4/17/98, otherwise Plum Creek must request an extension of time and/or a permit modification to commence construction.

controlled with four GeoEnergy E-tube wet ESPs. Each ESP is designed to accommodate a stack flow of 70,000 actual cubic feet per minute (acfm) (280,000 acfm total). The dryers are capable of processing 57 ton/hr of bone dry fiber. The Line 2 MDF fiber dryers are controlled with two venturi scrubbers and three biofilters with a total stack flow of 600,000 acfm.

2. Two plywood veneer dryers with one Geo-Energy wet ESP control, and a combined design capacity of 22,100 square feet/hr of plywood on a 3/8" basis. The veneer dryers are heated with a Wellons unit, which has a design capacity of 30 MMBtu/hr.

3. One wood-fired Riley-Union Stoker boiler with a current input capacity of 292.4 MMBtu/hr firing rate. This boiler is controlled with a PPC Industries ESP and has a maximum steaming capacity of 170,000 lb/hr of steam.

4. The combined sawmill and planer process includes the following point sources of emissions:

Description	Flow (acfm)
Planer #3 Cyclone	24000
Planer #4 Cyclone	60000
Planer Shavings Bin Cyclone	6000
Planer Chip Bin Cyclone	6000
Sawmill Chip Bin Cyclone	6000
Sawmill Sawdust Target Box	6000
Seven Drying Kilns	NA

5. Total plywood process excluding the veneer dryers. This process includes the following point sources of emissions:

Description	Flow (acfm)
Plywood Chip Bin Cyclone	5560
Plywood Sander Baghouse	35000
Plywood 18" Trim Baghouse	15000
Plywood 30" Trim Baghouse	15000

6. Total MDF process excluding drying. This process includes the following point sources of emissions:

Description	Flow (acfm)
Line 1 MDF N. Sander Baghouse	55000
Line 1 MDF S. Sander Baghouse	55000
Line 1 MDF Board Trim Baghouse	13400
Line 1 MDF Sanderdust Fuel Baghouse	4100
Line 1 MDF Boiler Sanderdust Baghouse	21700
Line 1 MDF Booksaw Baghouse	50000
Line 1 MDF Sander Hog Baghouse	50000
Line 1 MDF Metering Bin Baghouse	50000
Line 1 MDF Fire Dump Cyclone (emergency only)	
Line 1 MDF Felter Baghouse #1	50000
Line 1 MDF Felter Baghouse #2	50000

Line 1 MDF Reject Fiber Cyclone & Baghouse	vents inside
Line 1 MDF ADS Baghouse	50000
Line 2 MDF North Sander Baghouse	50000 dscfm
Line 2 MDF South Sander Baghouse	50000 dscfm
Line 2 MDF Reject Baghouse	80000 dscfm
Line 2 MDF Forming Baghouse	50000 dscfm
Line 2 Coen Fuel Bin Baghouse	4100 dscfm

7. Fugitive dust from mill vehicles and log yard activity.

8. One natural gas boiler with a design capacity of 20,000 lb/hr steam (32.336 MMBtu/hr input).

9. One Combustion Engineering natural gas fired steam boiler with a design capacity of 22,500 lb/hr steam (31.16 MMBtu/hr input).

C. Permit History

Prior to Permit Modification **#2667-02**, only the plywood veneer dryer (#2667), the Wellons unit (#1501), the Line 1 MDF fiber dryers (#2233), new baghouses at the Line 1 MDF plant (#2174), and the original Line 1 MDF plant (#5640051073) were subject to air quality permits. The sawmill and the plywood plant pre-date the Montana Clean Air Act and were not required to obtain a permit unless a modification of the source occurred, or a standard changed affecting the facility. Permit #2667-02 replaced Permit #2667-01.

On January 5, 1994, Permit **#2667-03** was issued to Plum Creek for the installation of the Combustion Engineering natural gas boiler. This boiler supplies the steam necessary for the lumber drying kilns to operate year round. Prior to this installation, the steam supplied to the lumber drying kilns was shut off due to the increased demand for steam from the rest of the facility during the winter months. The lumber that was intended to be dried in the kilns was stacked outside and allowed to air dry as much as possible. When capacity allowed, this lumber was then placed in the kiln for a final polishing dry, if necessary. Permit #2667-03 replaced Permit #2667-02.

On July 11, 1994, Permit **#2667-04** was issued to Plum Creek for the construction and operation of an ESP on the wood-fired Riley-Union Stoker boiler. This ESP replaced the wet scrubber that was used to control emissions from the boiler. This installation alleviated back pressure on the boiler that allowed the steam production to increase to 170,000 lb/hr and also increased the maximum input capacity to 292.4 MMBtu/hr. This additional steam was sufficient to allow for a plant production increase of 13%.

At the MDF plant, an additional sander, an air density separator, and a blow hog were proposed to be installed. The emissions from the sander are controlled by a baghouse (the Line 1 MDF sander baghouse). The emissions from the air density separator and the blow hog vent to the Line 1 MDF materials handling baghouses. In addition, secondary refiners were installed in the Line 1 MDF process to improve fiber quality and two more platens were added to the Line 1 MDF press to increase the capacity of the press.

To offset the increase in particulate emissions from the construction of the new sources and the increase in production capabilities, Plum Creek agreed to reduce the enforceable emission rate from the veneer dryers. In 1991, Plum Creek installed an ESP on the

veneer dryer stack at the Columbia Falls plywood plant. Although the ESP was required to be installed on the stack to control opacity, a decrease in particulate emissions was also achieved. The decrease in particulate emissions had not been reflected in the permit or the State Implementation Plan (SIP) until the issuance of this permit. Conditions in Permit #2667-04 reduced particulate emissions from this project below significance levels.

The construction of the new sources of emissions, coupled with the increase in production capabilities, resulted in a net decrease of total particulate of 26.4 tpy, a net increase in particulate matter less than 10 microns in diameter (PM-10) of 5.6 tpy, a net increase in nitrogen oxides (NO_x) of 315 tpy, a net increase in carbon monoxide (CO) of 162 tpy, a net increase in volatile organic compounds (VOCs) of 97.7 tpy, and a negligible increase in toxic air pollutants (TAP). The emissions increase of NO_x, CO, and VOCs exceeded significance levels and were, therefore, subject to a New Source Review (NSR)/ Prevention of Significant Deterioration (PSD) review.

Since this permit was subject to PSD review, the Federal Land Managers (FLMs) were given an opportunity to review the application submitted by Plum Creek. Through the course of the FLM review, Plum Creek was asked to conduct additional modeling for Air Quality Related Values (AQRV), namely episodic acidification in Glacier National Park, and also a regional haze analysis. Bison Engineering, on behalf of Plum Creek, submitted additional modeling verifying that the increase in NO_x emissions resulted in a pH change less than 0.01 units in the two lakes that were analyzed. One of the FLMs, the National Park Service (NPS), then conducted a regional haze analysis and determined that this alteration would not contribute significantly to visibility degradation in Glacier National Park.

In addition to the modeling requests, the NPS requested that Plum Creek supply more information supporting the Best Available Control Technology (BACT) conclusions in the application. The NPS requested that the BACT analysis for the boiler also address Selective Non-Catalytic Reduction (SNCR) for the control of NO_x from the boiler.

Also, the NPS requested that Plum Creek further explain assumptions made in the BACT analysis for the control of particulate from the Line 1 MDF fiber dryers. Plum Creek submitted this information to the Department of Environmental Quality (Department) as requested.

After Plum Creek submitted the additional information, the Department determined this information was sufficient to support the original BACT conclusions contained in the application and the Preliminary Determination (PD) was then issued. Permit #2667-04 replaced Permit #2667-03.

On April 17, 1995, Permit **#2667-05** was issued to Plum Creek for the installation of four GeoEnergy E-tube wet ESPs on the stacks of the Line 1 MDF fiber dryers. Each ESP was designed to accommodate a stack flow of 70,000 acfm (280,000 acfm total) and resulted in a net decrease in particulate emissions from the Line 1 MDF fiber dryers. The four ESPs vent to a single stack.

Plum Creek also proposed to replace the two Energex burners used to heat the face dryer with a larger Coen burner. The Coen burner has a heating capacity of 50 MMBtu/hr. This increase in available heat to the Line 1 MDF Fiber Dryers, along with Plum Creek's

proposed installation of two additional platens for the Line 1 MDF Press, increased the capacity of the dryers from 37 ton/hr of bone dry fiber processed to 57 ton/hr of bone dry fiber processed. This production increase resulted in a significant net emissions increase in VOCs of 94 ton/year. Therefore, Permit #2667-05 was subject to a PSD review for VOCs. There were also insignificant increases in NO_x, CO, and SO_2 as a result of this production increase; but no net increase in particulate because of the installation of the ESPs.

Plum Creek also proposed to change the allowable emissions for the baghouses at the facility. The previous method of determining the allowable emissions was to assume that baghouses were 90% more efficient than cyclones. Manufacturers typically guaranteed an emission rate of 0.005 gr/dscf for baghouses. The allowable emissions for the baghouses were changed to the pound-per-hour equivalent of the 0.005 gr/dscf emission rate.

In addition, Plum Creek proposed to re-install an existing cyclone in the Line 1 MDF raw materials storage building. This 10,000 acfm cyclone is called the board trim cyclone and vents inside the Line 1 MDF building. This cyclone allows trim to be recycled into the Line 1 MDF process. The emissions from this cyclone are controlled by the existing Line 1 MDF material handling baghouse.

Plum Creek also proposed to re-configure the Line 1 MDF materials handling baghouse that was permitted in the Permit #2667-04. In Permit #2667-04, a single baghouse with an airflow of 70,000 dscfm was permitted at the Line 1 MDF materials handling building. Plum Creek proposed to change the configuration of this baghouse to 2 - 25,000 dscfm units because of changes to the project design. The units vent to one common stack.

As a final modification to their facility under this permit action, Plum Creek proposed to install an ESP between the Wellons cell and the veneer dryers. The ESP removes particulate from the gas stream used to heat the veneer dryers and provides for higher product quality. This ESP is not a source of emissions or a stack associated with a source of emissions. However, the installation of the ESP constituted a changed condition of operation that did not result in an increase in emissions. Therefore, Plum Creek's permit was modified to reflect the changed operating condition. This modification to the facility was incorporated into the above-requested permit alteration. Permit #2667-05 replaced Permit #2667-04.

On May 5, 1995, Plum Creek was issued Permit Modification **#2667-06** to allow for an extension of time for the completion of the NO_x and CO testing on the Riley-Union Stoker boiler. Plum Creek was then required to demonstrate compliance with the NO_x and CO limits on the Riley-Union Stoker boiler by September 22, 1995. The source test was conducted on July 18, 1995.

On July 26, 1995, Permit **#2667-07** was issued to increase the allowable CO emissions from the Riley-Union Stoker boiler from 100 lb/hour to 468 lb/hour. The 100-lb/hour CO limit was based on AIRS Facility Subsystem Emission Factors (AFSEF) emission factors and was later determined to be inappropriate for a 20-year-old boiler. Manufacturers' data and tests on similar boilers suggested that CO emissions from a boiler of this type can range up to 1.6 lb/MMBTU. With a heat input capacity of 292.4 MMBTU/hour, this yielded an hourly emission rate of 468 lb/hr. The allowable CO emissions for the boiler were increased by 1,612 ton/year, but actual CO emissions did not change.

The allowable CO emission increase exceeded significance levels and, therefore, was subject to PSD review. As required by the PSD review process, the appropriate FLMs, as well as the United States Environmental Protection Agency (EPA), were given the opportunity to comment on the proposal. No comments were received from any of the parties. Permit #2667-07 replaced Permit #2667-06.

Permit Modification **#2667-08** was issued by the Department to correct particulate emission limits for the Line 1 MDF Felter #1 & #2 Baghouses. The emission limits were correctly calculated in the permit analysis of Permit #2667-07 as 1.93 lb/hr of particulate, but the emission limit was incorrectly typed as 0.39 lb/hr in the permit. Also, the modification updated the rebuilt plywood facility chip handling process by replacing the Plywood #1 Chip Bin Cyclone and Plywood #2 Chip Bin Cyclone emission limits with a single emission limit for the new Plywood Chip Bin Cyclone; the new emission limit equals the sum of former cyclone emission limits. Formerly, each cyclone had emission limits of 0.65 lb/hr for particulate matter and 0.26 lb/hr for PM-10. The new Plywood Chip Bin Cyclone emission limit is 1.30 lb/hr for particulate matter and 0.52 lb/hr for PM-10. This change was allowed under the de minimis rule.

In addition, this modification updated the rule citations, removed testing and notification requirements already met by Plum Creek, updated the existing equipment list, and updated the emission inventory by including the sawmill sawdust target box, the plywood fines bin target box, and the drying kilns.

The sawmill sawdust target box had not been included in any permit application, emission inventory, or permit since 2667-M (10/24/91). In Permit #2667-M (10/24/91), the Sawdust Bin Cyclone (sawmill sawdust target box) had allowable PM-10 emissions of 0.77 lb/hr. Permit #2667-M (1/24/92), included all the cyclones in the sawmill planer process with a PM-10 emission limit of 12.92 lb/hr; however, the Sawdust Bin Cyclone was no longer listed as a part of the process. Permit #2667-04 assigned individual emission limits to each cyclone. Permit #2667-08 added the sawdust target box and drying kilns to the equipment list and emission inventory, but did not include any emission limits. Permit #2667-08 replaced Permit #2667-07.

A review of the permitting actions demonstrated that the sander baghouse, blow hog, four additional press platens, and the replacement of the two Energex sanderdust burners with one Coen sanderdust burner had not commenced. The sander baghouse, blow hog, and two additional press platens were required to commence construction by July 11, 1997, while the Energex sanderdust burners and 2 additional press platens were required to commence construction by April 17, 1998. A letter dated May 22, 1996, from Mitchell Leu requested that the construction projects be delayed for approximately 2 to 3 years. An alteration to the permit is required for a delay in the commencement of construction of more than 3 years (ARM 17.8.731). This rule (and accompanying time period in the permit) would give the Department the opportunity to review the BACT determination to ensure that it is still valid. Thus, if construction on the projects had not commenced by April 17, 1998, Plum Creek would have to request a permit alteration.

On October 8, 1999, Plum Creek submitted a permit application to add a second MDF production line (Line 2) to the Columbia Falls facility. Unlike Line 1 (batch press), the new production line would utilize a continuous press for the production of MDF. Adding Line 2 to the MDF facility would greatly increase the production of MDF and profit from the facility. New limits were added to the permit and new emitting units were added to the emission inventory in the permit analysis.

The addition of Line 2 triggered the PSD rules for CO, NO_x, and ozone (measured as VOCs). Because Plum Creek agreed to various limits, the contemporaneous emission changes of particulate matter and PM-10 were below the PSD significance levels. For this reason, no additional air quality analyses were required for particulate matter and PM-10. Plum Creek submitted dispersion modeling that demonstrated that the NO_2 emissions consume 10.8% (0.27 $\mu g/m^3$) of the annual Class I increment and 19.8% (4.96 $\mu g/m^3$) of the annual Class II increment.

Since this permit was subject to a PSD review, the FLMs and EPA were also given an opportunity to review the application submitted by Plum Creek. Through the course of the FLM review, the NPS requested that Plum Creek revise the regional haze and deposition analyses that were done and repeat the AQRV analysis. In addition, the NPS requested additional information regarding the BACT analysis. Plum Creek submitted the requested information. No comments were received from EPA or any other FLMs.

The Department received comments on the PD from the NPS on December 1, 1999, and from Plum Creek on December 2, 1999. All comments received on the PD were addressed in the permit, as the Department deemed appropriate. Permit **#2667-09** replaced Permit #2667-08.

On April 23, 2001, Plum Creek submitted an application for an alteration in the design of the Line 2 MDF dryer emissions control equipment. The ESP would be replaced by two venturi scrubbers operating in series with a bio-filter system.

The addition of Line 2 triggered PSD review for CO, NO_x, and ozone (measured as VOCs). Plum Creek is not subject to the NSR nonattainment area permitting requirements for this permitting action.

Since the BACT determination had changed since the initial issuance of Permit #2667-09 for the second MDF line, the FLMs and EPA were given an opportunity to review the application submitted by Plum Creek. The change in the BACT would cause the emission dispersion characteristics of the stacks to change, although the emission limits for the Line 2 MDF dryers would remain the same.

In addition to changing the emission controls for the second line, Plum Creek made minor changes to several cyclones and baghouses on the existing and proposed MDF lines. The sizes and locations of some of the Line 2 baghouses changed in the new design. Two cyclones were removed from the existing MDF line, and some of the baghouse names were changed. The emission inventory reflected the change in flow rates based on the volume of cooling air introduced into the bio-filter system.

Due to the dryer stack dispersion characteristics and the baghouses, Plum Creek submitted a revised PM-10 compliance demonstration with this application. The modeling shows that the second line MDF project would not cause or contribute to a violation of the Montana Ambient Air Quality Standards (MAAQS). Permit **#2667-10** replaced Permit #2667-09.

D. Current Permit Action

On December 5, 2001, Plum Creek submitted an NSR/PSD application for three historical projects at the Columbia Falls facility. During an independent compliance awareness review performed in 2000, Plum Creek discovered that the 1989 MDF Coen

Burner Project, the 1990 MDF Line Speed Up Project, and the 1992 MDF Heating and Humidification Project should have gone through PSD permitting prior to the projects being constructed and/or implemented. Based on the PSD Significant Emission Rates (SERs), the 1989 MDF Coen Burner Project would have been subject to PSD permitting for CO and NO_x; the 1990 MDF Line Speed Up Project, for PM, PM-10, and VOCs; and the 1992 MDF Heating and Humidification Project, for PM, PM-10, and VOCs. As the Columbia Falls area (including the Plum Creek facility) was designated as a nonattainment area for PM-10 by the U.S. Environmental Protection Agency (EPA) on November 15, 1990, the 1992 project would have triggered nonattainment area NSR permitting for PM-10. This permitting action addresses the PSD permitting, as well as the nonattainment area NSR permitting, which should have occurred prior to construction/implementation of the above-mentioned projects.

In addition, on November 19, 2002, the Department received a request from Plum Creek to remove the requirement limiting the MDF Line 2 equipment to 8760 hours per year. As there are only 8760 hours in a year, this requirement is not necessary and will be removed.

In response to further research by the Department and comments received in the Preliminary Determination (PD) of Permit #2667-11, the discussion regarding Low NO_x Burners as a BACT option for NO_x control was revised. In addition, Section II.L of Permit #2667-11's PD was eliminated, as the emissions from the Coen Burner are already incorporated into the Line 1 MDF limitations and conditions. Line 1 MDF (including the Coen Burner) is currently tested as one emission point on an every-3-year basis. The BACT requirement for good combustion practices does not change the overall potential to emit, which was the basis for the original Coen Burner NO_x and CO limits placed in the PD of Permit #2667-11.

Permit **#2667-11** replaces Permit #2667-10.

E. Additional Information

Additional information, such as applicable rules and regulations, BACT/Reasonable Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8 Subchapter 1 – General Provisions, including, but not limited to:

1. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

2. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Plum Creek shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

3. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

4. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to:

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standard for Ozone
5. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
7. ARM 17.8.221, Ambient Air Quality Standard for Visibility
8. ARM 17.8.222 Ambient Air Quality Standard for Lead
9. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}
10. ARM 17.8.230 Fluoride in Forage

Plum Creek must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed or altered after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Plum Creek shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

(4) This rule requires reasonable precautions for fugitive emission sources and RACT for existing fugitive emission sources located in a nonattainment area. The Department, in consultation with EPA, determined that the use of chemical stabilization on major haul roads and on working areas within the log decks, in conjunction with watering, will satisfy these requirements.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere, particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere, particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions—Sulfur in Fuel. Commencing July 1, 1972, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.324 Hydrocarbon Emissions—Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such a tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR Part 60. There are no NSPS requirements for plywood plants or MDF plants.

   40 CFR Part 60, Subpart D, Standard of Performance for fossil-fuel-fired steam generators does not apply to the Riley-Union Stoker wood-fired steam boiler because it does not have the capabilities of firing fossil fuel at a heat input rate of more than 250 million Btu per hour.

   40 CFR Part 60, Subpart Db, Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units does not apply to the Riley-Union Stoker wood-fired steam boiler because it was not constructed, reconstructed, or modified after June 19, 1984. The Riley-Union Stoker wood-fired steam boiler was fabricated in 1973.

   40 CFR Part 60, Subpart Dc, Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units does not apply to any Plum Creek – Columbia Falls facility boiler because they were all constructed prior to June 9, 1989.

D. ARM 17.8. Subchapter 5 – Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the

submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Plum Creek submitted the appropriate fee for the current permitting action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.704 General Procedures for Air Quality Preconstruction Permitting. This air quality preconstruction permit contains requirements and conditions applicable to both construction and subsequent use of the permitted equipment.

2. ARM 17.8.705 When Permit Required Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use an air contaminant source that has the potential to emit more than 25 tons per year of any pollutant. Plum Creek has the potential to emit greater than 25 tons per year of PM, PM-10, NO_x, CO, and VOCs; therefore, a permit is required.

3. ARM 17.8.706 New or Altered Sources and Stacks – Permit Application Requirements. This rule requires that a permit application be submitted prior to installation, alteration, or use of a source. Plum Creek submitted the required permit application.

4. ARM 17.8.707 Waivers. ARM 17.8.706 requires the permit application be submitted 180 days before construction begins. This rule allows the Department to waive this time limit. The Department hereby waives this time limit.

5. ARM 17.8.710 Conditions for Issuance of Permit. This rule requires that Plum Creek demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. Plum Creek demonstrated compliance with applicable rules and standards as required for permit issuance.

6. ARM 17.8.715 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of the permit analysis.

7. ARM 17.8.716 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

8. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving Plum Creek of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.701, *et seq*.

9. ARM 17.8.720 Public Review of Permit Applications. This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Plum Creek submitted an affidavit of publication of public notice from the November 29, 2001, issue of the *Daily Inter Lake*, a newspaper of general circulation in the Town of Kalispell in Flathead County, as proof of compliance with the public notice requirements.

10. ARM 17.8.731 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, that in no event may be less than 1 year after the permit is issued.

11. ARM 17.8.733 Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase in emissions as a result of those changed conditions. A source may not increase its emissions beyond those found in its permit, unless the source applies for and receives another permit.

12. ARM 17.8.734 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications – Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

3. ARM 17.8.822 Air Quality Analysis. This rule requires a major stationary source to supply an analysis of the ambient air quality in the area that the emissions from the major stationary source or major modification would affect. This rule further requires that the analysis shall contain air quality monitoring

data for any pollutant that may be emitted in a significant amount and for which no ambient air quality standard exists. An air quality analysis was performed and is described in Section VI of this permit analysis.

Plum Creek's Columbia Falls Facility is not a listed source, but it is defined as a "major stationary source" since it has the potential to emit more than 250 tons per year of any pollutant. The current permit action is subject to PSD review based on the following information:

1989 MDF Coen Burner Project

Pollutant	Total Change in Emissions (tons/year)	PSD SERs (tons/year)	Is Change Above SER?
CO	120.1	100	Yes
NO_x	61.1	40	Yes
SO_2	1.6	40	No

1990 MDF Production Line Speedup Project

Pollutant	Total Change in Emissions (tons/year)	PSD SERs (tons/year)	Is Change Above SER?
PM_{10}	50.0	15	Yes
PM	58.1	25	Yes
CO	40.8	100	No
NO_x	22.6	40	No
SO_2	0.5	40	No
VOCs	57.5	40	Yes
Lead	4.3E-06	0.6	No

1992 MDF Heating and Humidification Project

Pollutant	Total Change in Emissions (tons/year)	PSD SERs (tons/year)	Is Change Above SER?
PM_{10}	47.0	15	Yes
PM	55.5	25	Yes
CO	32.2	100	No
NO_x	17.5	40	No
SO_2	0.4	40	No
VOCs	49.5	40	Yes
Lead	5.0E-06	0.6	No

Therefore, the 1989 MDF Coen Burner Project would have been subject to PSD for CO and NO_x; the 1990 MDF Line Speed Up Project, for PM, PM-10, and VOCs; and the 1992 MDF Heating and Humidification Project, for PM, PM-10, and VOCs. The PSD applicability and associated permitting process are addressed in this permitting action.

G. ARM 17.8, Subchapter 9 – Permit Requirements for Major Stationary Sources or Major Modifications Locating within Nonattainment Areas, including, but not limited to:

ARM 17.8.906 Baseline for Determining Credit for Emissions and Air Quality Offsets.

(1) This rule specifies that emission offsets in nonattainment areas are required to be in the form of, and against, actual emissions. (2) Where the emission limitation under the Montana State Implementation Plan (SIP) allows greater emissions than the actual emissions of the source, emission offset credit will be allowed only for control below the actual emissions. (6) All emission reductions claimed as offset credit shall be federally enforceable. (7) Emission offsets may only be obtained from the same source or other sources in the same nonattainment area. (9) In the case of emission offsets involving sulfur dioxide, particulates, and carbon monoxide, area-wide mass emission offsets are not acceptable and the applicant shall perform atmospheric simulation modeling to ensure that the emission offsets provide a positive net air quality benefit. However, the Department may exempt the applicant from the atmospheric simulation modeling requirement if the emission offsets provide a positive net air quality benefit, are obtained from an existing source on the same premises or in the immediate vicinity of the new source, and the pollutants disperse from substantially the same effective stack height. The Department hereby exempts Plum Creek from these modeling requirements. (10) Credits for an emission reduction can be claimed to the extent that the Department has not relied on it in issuing any air quality preconstruction permit under Subchapters 7, 8, 9 and 10, or Montana has not relied on it in a demonstration of attainment or reasonable further progress.

The 1992 MDF Heating and Humidification Project would have been subject to NSR Nonattainment Area permitting had it been permitted prior to implementation. As this permit action acts to ensure compliance with the applicable NSR/PSD requirements looking back at this project, offsets have been required as a part of this action. The 1992 MDF Heating and Humidification Project incurred 47.0 tons of actual PM-10 emissions on an annual basis. According to ARM 17.8.905, emission reductions (offsets) obtained must provide both a positive net air quality benefit in the affected area and a ratio of 1:1 or greater with respect to the proposed emission increases. Therefore, at least 47.0 tons of PM-10 offsets must be obtained for this project to comply with ARM 17.8, Subchapter 9.

As actual PM-10 emissions from the Plum Creek Columbia Falls facility have decreased in excess of 250 tons from 1992 to 2001, and are expected to continue to decrease based on emission controls installed on new projects, the offsets were found from existing actual emissions reductions at Plum Creek. Of those reductions, 30.6 tons per year of PM-10 reductions had already been made federally enforceable in permit #2667-09 and 10 tons per year in Permit #2667-10, both associated with the Line 2 MDF project. Both analyses for contemporaneous emission changes associated with those permits can be found in the respective permit applications. Preliminary actual emissions data from the Line 2 MDF project show that emission reductions will exceed those cited reductions. In addition, actual emission reductions were made federally enforceable by the decrease of the emission limit on the Riley-Union Stoker Boiler from 8.77 lb/hr to 6.94 lb/hr of PM-10 (for a total of 8.0 tons per year). The total offsets accounted for total 48.6 tons per year, exceeding the necessary 47.0 tons per year.

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

   a. Potential to Emit (PTE) > 100 tons/year of any pollutant;
   b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25

tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE > 70 tons/year of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2667-11 for Plum Creek, the following conclusions were made.

a. The facility's PTE is greater than 100 tons/year for PM-10, NO_x, CO and VOCs.

b. The facility's PTE is greater than 10 tons/year for any one HAP and greater than 25 tons/year for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is not subject to any current NSPS.

e. This facility is not subject to any current NESHAP standards.

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that Plum Creek is subject to the Title V operating permit program. Plum Creek was issued a Title V operating permit (OP2667-00) on January 14, 1999.

III. BACT Determination

A BACT determination is required for each new or altered source. Plum Creek shall install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The 1989 MDF Coen Burner Project and the 1990 MDF Production Line Speedup Project are evaluated with respect to BACT as described below. The 1992 MDF Heating and Humidification Project is not subject to BACT (or Lowest Achievable Emission Rate (LAER) for PM-10) because all emission increases are associated emission increases that result from the "debottlenecking" of unmodified emission units.

A. 1989 MDF Coen Burner Project

The 50-MMBtu/hr Coen sanderdust burner was installed in 1989 at the Columbia Falls MDF facility to heat air for the MDF fiber dryers. The Coen Burner was the only piece of equipment installed or modified as part of the project. The BACT analysis evaluates controls for CO and NO_x.

1. Coen Burner: CO Controls

The following technologies were evaluated with respect to CO control on the Coen Burner: Regenerative Thermal Oxidizers (RTO), Regenerative Catalytic Oxidizers (RCO), and good combustion practices.

RTO

RTOs are a widely used control technology for CO control. RTO supplies sufficient air at a suitable temperature to allow for complete combustion of CO to carbon dioxide (CO_2) and water, while recovering up to 95% of all heat energy. The influent gas stream is heated to the operating temperature of the RTO through direct contact heat exchangers constructed of ceramic material. The waste stream is then completely oxidized by ignition of contaminants in the stream. After oxidation, the clean air is exhausted through downstream direct contact heat exchangers, which recover the heat lost to the stream by the first ceramic bed. Control efficiency is estimated at 70-91.7%.

One advantage of RTO is the ability to control VOCs in addition to CO. However, implementation of RTO would increase NO_x emissions. Another disadvantage of RTO is the temperatures in excess of 1,300°F are typically required to achieve 90% or greater conversion to CO_2. Auxiliary natural gas firing would be required to heat the air stream to a suitable temperature for oxidation. RTO is technically feasible for this type of process. However, at 90% efficiency, the cost would be approximately $7,583 per ton of CO removed, making it economically infeasible based on the alternatives provided and recently permitted similar sources. RTO will not constitute BACT for the Coen Burner.

RCO

RCOs employ the same principal as RTO except a catalyst is used to increase the reaction rate, enabling conversion to CO_2 at a lower reaction temperature than in RTO. However, the waste stream still must be preheated to a temperature sufficient to initiate the oxidation reactions. The waste stream is preheated either directly in a preheater combustion chamber or indirectly by heat exchange with the incinerator's effluent or other process heat or both. The preheated gas stream is then passed over a catalyst bed consisting of a noble metal such as palladium or platinum. CO is oxidized while passing over the catalyst bed.

Like RTO, RCO has the ability to control VOCs in addition to CO. An advantage of RCO is the relatively cool temperature (600-700°F) required for 90% or greater control of CO as compared to the energy requirements of RTO. A disadvantage of RCO is the possibility of catalyst deactivation by chlorine or sulfur. The presence of particulate matter could also deactivate the catalyst by blinding the catalyst pores. In addition, use of an RCO system will increase NO_x emissions.

An RCO system is not a technically feasible option for the reduction of CO from the Coen Burner. Combustion products from the burner contain chlorine and particulate matter that could poison the catalyst, rendering it ineffective. Additionally, wood ash particles produced by the burner are alkaline in nature and could seriously harm the catalyst. The extreme sensitivity of the catalyst material to chlorine and particulate mater makes RCO an unsuitable control option for the Coen burner. Therefore, RCO was eliminated from consideration,

and will not constitute BACT for the Coen Burner on the basis of being technically infeasible.

Good Combustion Practices

A properly designed combustion device itself acts to control emissions. Ensuring that the temperature in the combustion chamber and oxygen availability are adequate for complete combustion can minimize formation of CO. Good combustion practices require no additional cost. Based on the control technologies available and on other similar, recently permitted sources, the Department determined that good combustion practices constitute CO BACT for the Coen Burner.

2. Coen Burner: NO_x Controls

The following technologies were evaluated with respect to NO_x control on the Coen Burner: Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (NSCR), Low NO_x Burners (LNBs) and combustion control.

SCR

SCR is a post-combustion gas treatment technique that uses a catalyst to reduce NO and NO_2 to molecular nitrogen, oxygen, and water. Ammonia (NH_3) is commonly used as the reducing agent. NH_3 is vaporized and injected into the flue gas upstream of the catalyst bed. The NH_3 combines with the NO_x at the catalyst surface to form an ammonium salt intermediate. The ammonium salt intermediate then decomposes to produce elemental nitrogen and water. The catalyst lowers the temperature required for the chemical reaction between NO_x and NH_3. Catalysts used for NO_x reduction can include base metals, precious metals, and zeolites. Commonly, the catalyst is a mixture of titanium and vanadium oxides. An attribute common to all catalysts is the narrow "window" of acceptable system temperatures. In this case, the temperature "window" is approximately 575 to 800ºF. Below 575ºF, the NO_x reduction reaction will not proceed, while operation above 800ºF will shorten catalyst life and can lead to the oxidation of NH_3 to either nitrogen oxides or possibly generating explosive levels of ammonium nitrate in the exhaust gas.

Technical factors that impact the effectiveness of this technology include the catalyst reactor design, operating temperature, type of fuel fired, sulfur content of the fuel, design of the NH_3 injection system, and the potential for catalyst poisoning. The control efficiency, under technically feasible conditions, is estimated at 75%. For the Coen Burner, the technical issues would be related to the sanderdust fired in the burner, specifically the very high potential for catalyst poisoning due to the particulate in the exhaust gas. This issue eliminates SCR from consideration based on technical infeasibility for the Coen Burner. In addition, SCR has not been required of other recently permitted similar souces. Therefore, SCR will not constitute NO_x BACT for the Coen Burner.

SNCR

SNCR involves the noncatalytic decomposition of NO_x to nitrogen and water. A nitrogenous reducing agent, typically NH_3 or urea, is injected directly into the hot flue gas. Because a catalyst is not used to drive the reaction, temperatures of 1600 to 2100ºF are required. NO_x removal efficiency varies considerably for this

technology, depending on the inlet NO_x concentrations, fluctuating flue gas temperature, residence time, amount and type of nitrogenous reducing agent, mixing effectiveness, and the presence of interfering chemical substances in the gas stream. The estimated average control efficiency is 50%. SNCR has not been required of other recently permitted similar sources. Between the possible interference of particulates and other wood waste residue in the exhaust gas and the additional environmental and economic impacts of an additional heat source to supply the necessary temperature enviroment, SNCR will not constitute NO_x BACT for the Coen Burner on the basis of technical infeasibility and environmental impacts.

LNBs

LNBs reduce NO_x formation by controlling the mixing of fuel and air to provide low excess air firing. LNBs are designed to reduce peak flame temperature and/or reduce the residence time at high temperature. The effectiveness of LNB control technology generally ranges from 60 to 90%. However, due to the high percentage of fuel-bound nitrogen in sanderdust, the control efficiency of a LNB will be lower, between 20 and 30%. The impacts from a LNB include additional CO and VOC emissions, high operating costs, and additional energy requirements.

Based on information provided in the application for Permit #2667-11, at 25% efficiency, the cost of LNB utilization in the Coen Burner would be approximately $2,735 per ton of NO_x removed. After further research, based on actual installation costs incurred during the installation of LNB in the Line 2 Coen Burner at the Columbia Falls facility (required by Permit #2667-09), the costs were adjusted to approximately $4,935 per ton of NO_x removed.

The revised costs include the installation of a new and separate unit, as retrofitting the existing unit would require shutting the facility down while the retrofit was accomplished (an unacceptable option). The costs mentioned do not include building reconstruction and facility reconfiguration, although it is doubtful the current space could accommodate the new burner and associated ductwork.

The most recent BACT determination involving requiring LNBs on a sanderdust burner estimated costs at approximately $1000 per ton of NO_x removed. Based on the cost of other similar, recently permitted sources and other feasibility issues associated with LNBs in this case, the Department determined that LNBs will not constitute NO_x BACT for the Coen Burner.

Combustion Control

Combustion control limits the amount of air available for combustion and the temperature of the bed in order to minimize NO_x emissions. Based on the control technologies available and on other similar, recently permitted sources, the Department determined combustion control will constitute NO_x BACT for the Coen Burner.

B. 1990 MDF Production Line Speedup Project

The following equipment was added or modified as a result of the 1990 MDF Production Line Speedup Project: truck dump hopper, two pneumatic systems, above-ground reclaim system, refiner plates, forming line fiber relay system, and the Line 1 press. The truck dump hopper modification did not result in emissions increases, except for associated emissions from debottlenecking of other sources. Therefore, the truck dump hopper will not be evaluated for BACT. The pneumatic systems have been completely removed from the MDF facility, and will also not be evaluated for BACT.

The 1990 MDF Production Line Speedup Project is subject to PSD for particulates, VOCs, and NO_x. All NO_x emission increases resulting from this project are associated emission increases that resulted from unmodified emissions units. Therefore, a BACT analysis for NO_x is not required. A particulate BACT analysis follows for the above-ground reclaim system, the refiner plates, the forming line fiber relay system, and the Line 1 press. BACT was also evaluated with respect to VOCs for the press.

1. Above-ground Reclaim System: Particulate Control

A baghouse currently controls particulate emissions from the metering bin (the only emission source) of the above-ground reclaim system at a rate of 1.93 lb/hr. Plum Creek proposes continued operation and maintenance of the metering bin baghouse as BACT for particulates. The Department concurs that the current emission limit of 1.93 lb/hr with the baghouse constitutes BACT for particulates for the above-ground reclaim system.

2. Refiner plates and Forming Line Fiber Relay System: Particulate Control

Particulate emissions from the refiner plates and the forming line are currently controlled by the dryer wet Electrostatic Precipitators (ESPs) and felter baghouses. Plum Creek proposes continued operation and proper maintenance of these controls as BACT for the refiner plates and the forming line. The particulate emission limit is 23.14 lb/hr from the dryer wet ESP and 1.93 lb/hr from the felter baghouses. The Department concurs that the current emission limits in conjunction with the dryer wet ESP and felter baghouse constitute BACT for particulates for the refiner plates and forming line fiber relay system.

3. Press: Particulate Control

The RBLC did not identify any particulate controls for presses, additional research by the Department also did not identify any particulate controls for presses. Therefore, the Department determines that no add-on controls (continued operation and proper maintenance) constitutes BACT for the press in conjunction with the current emission limit of 25.8 lb/hr.

4. Press: VOC Control

The following technologies were evaluated with respect to VOC control on the press: Regenerative Thermal Oxidizers (RTOs) and good operation practice.

RTO

RTOs use heat to thermally oxidize the VOCs in the air stream. In order for thermal oxidation to be effective, a gas stream residence time of 0.5 seconds or greater is required as well as a minimum temperature of 1600 °F. Large amounts of heat are necessary to operate the RTO system, which requires the use of additional fuel and increases the amounts of other pollutants emitted. An added benefit of installing RTO is that it would also control CO emissions; however, as mentioned previously, NO_x emissions would increase. RTOs have an estimated control efficiency of 90-99.7% and are technically feasible for this type of application. The cost per ton for installation of RTO for the press is $18,111 at 96.8% efficiency. This cost does not include installation of particulate controls upstream of the RTO (for proper operation of the RTO) or of the additional gas pipeline that would be necessary if an RTO were to be installed and used on a continuous basis. The Department determined that RTO does not constitute BACT for the press on the basis of economic infeasibility.

Good Operation Practice

Good operation practice is technically feasible for VOC control from the press. Plum Creek proposed continued operation and proper maintenance of the press as BACT for VOC control. The Department concurs that proper maintenance in conjunction with the current emission limit from the press of 13.4 lb/hr VOCs constitutes VOC BACT for the press.

IV. Emission Inventory--Criteria Pollutants

A. Allowable Emission Inventory for Permit #2667-11

ton/year

Source	TSP	PM-10	NO_x	VOC	CO	SO_x
Riley -Union Stoker Boiler	38.4	30.4	589.13	19.71	2049.00	16.43
Combustion Engineering NG Boiler	0.85	0.85	19.11	0.79	4.78	0.08
Veneer Dryer	43.80	43.80		25.75		
Line 1 MDF ADS Baghouse	8.04	8.04				
Line 1 MDF Fiber Dryers	98.36	98.36	281.56	557.18	361.25	1.99
Planer #3 Cyclone	24.33	9.73				
Planer #4 Cyclone	60.82	24.33				
Planer Shavings Bin Cyclone	6.08	2.43				
Planer Chip Bin Cyclone	6.08	2.43				
Sawmill Chip Bin Cyclone	6.08	2.43				
Sawmill Sawdust Target Box	2.15	1.07				
Sawmill Drying Kilns	18.65	18.65		158.49		
Plywood Chip Bin Cyclone	5.69	2.28				
Plywood Fines Target Box	5.69	2.28				
Plywood Sander Dust Baghouse	5.91	5.91				
Plywood 18" Hog Baghouse	2.53	2.53				
Plywood 30" Hog Baghouse	2.53	2.53				
Plywood Fines Bin Target Box	5.69	2.28				
Line 1 MDF N. Sander Baghouse #7	9.01	9.01				
Line 1 MDF S. Sander Baghouse #8	9.01	9.01				
Line 1 MDF Board Trim Baghouse #10	0.52	0.52				
Line 1 MDF Sanderdust Fuel Baghouse	0.67	0.67				
Line 1 MDF Booksaw Baghouse #5	8.19	8.19				
Line 1 MDF Sander Hog Baghouse #6	8.19	8.19				
Line 1 MDF Metering Bin Baghouse #1	8.19	8.19				
Line 1 MDF Felter Baghouse #1	8.19	8.19				
Line 1 MDF Felter Baghouse #2	8.19	8.19				
Line 1 MDF Blr Sndrdst BH#11	3.56	3.56				
Line 1 MDF Forming and Finishing	109.65	40.38		56.95		
Plywood Boiler #2 (20,000 pph)	0.42	0.42	19.81	0.82	4.95	0.08
Line 2 MDF Fiber Dryers	78.8	78.8	190.2	333.0	316.0	3.49
Line 2 MDF Press	14.1	14.1		8.76		
Line 2 MDF North Sander Baghouse	9.37	9.37				
Line 2 MDF South Sander Baghouse	9.37	9.37				
Line 2 MDF Reject Baghouse	9.37	9.37				
Line 2 MDF Forming Baghouse	9.37	9.37				
Line 2 MDF Coen Fuel Bin Baghouse	1.88	1.88				
Line 2 MDF Hot Oil Natural Gas Burner	0.50	0.50	11.3	0.47	2.8	0.05
Total Emissions	658.1	510.7	1121.5	1162.0	2738.8	22.0

Riley-Union Stoker Boiler

TSP Emissions

Emission Factor: 0.030 lb/MMBtu{Information from Company, 1/26/94}

Hours of operation 8760 hour/year

Design Capacity: 292.4 MMBtu/hr

0.030 lb/MMBtu * 292.4 MMBtu/hr = 8.77 lb/hr {Permitted Allowable}

Calculations: 8.77 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 38.4 ton/yr

PM-10 Emissions:

Emission Factor: 6.94 lb/hr (Permitted Allowable)

Hours of operation 8760 hr/year

Calculations: 6.94 lb/hr * 8760 hr/yr * 0.0005 ton/lb =30.4 ton/yr

NO_x Emissions:

Emission Factor: 46 lb/MMBtu {Information from Company, 1/26/94}
Hours of operation 8760 hr/year
Design Capacity: 292.4 MMBtu/hr
0.46 lb/MMBtu * 292.4 MMBtu/hr = 134.50 lb/hr {Permitted Allowable}
Calculations: 134.50 lb/hr * 8760 hr/yr * 0.0005 ton/lb =589.13 ton/yr

VOC Emissions:
Emission Factor: 0.18 lb/ton {AP-42, Table 1.6-3, Rev. 10/92}
Control Efficiency 0.0%
Process Rate: 219000 ton/year {Estimated Maximum}
Calculations: 219000 * ton/year * 0.18 lb/ton * 0.0005 ton/lb =19.71 ton/yr

CO Emissions:
Emission Factor: 1.6 lb/MMBTU {Information from manufacturer}
Control Efficiency 0.0%
Design Capacity: 292.4 MMBTU/hr
Calculations: 292.4 MMBTU/hr * 1.6 lb/MMBTU * 8760 hr/yr * .0005 ton/lb =2049 ton/year

SO_x Emissions:
Emission Factor: 0.15 lb/ton {AFSEF, SCC 1-02-009-02, page 24}
Control Efficiency 0.0%
Process Rate: 219000 ton/year {Estimated Maximum}
Calculations: 219000 * ton/year * 0.15 lb/ton * 0.0005 ton/lb = 16.43 ton/yr

Combustion Engineering NG Boiler

TSP Emissions
Emission Factor: 6.20 lb/10^6 ft^3 gas {Permitted Allowable}
Fuel Consumption: 273 MMft^3/yr (Maximum Rated Design)
Calculations: 6.2 lb/10^6 ft^3 gas * 273 * 0.0005 ton/lb = 0.85 ton/yr

PM-10 Emissions:
Emission Factor: 6.20 lb/10^6 ft^3 gas {Permitted Allowable}
Fuel Consumption: 273 MMft^3/yr (Maximum Rated Design)
Calculations: 6.2 lb/10^6 ft^3 gas * 273 * 0.0005 ton/lb = 0.85 ton/yr

NO_x Emissions:
Emission Factor: 140.0 lb/10^6 ft^3 gas {AP-42, 1.4-1, Rev 10/92}
Fuel Consumption: 273 MMft^3/yr (Maximum Rated Design)
Calculations: 140.0 lb/10^6 ft^3 gas * 273 MMft^3/yr * 0.0005 ton/lb =19.11 ton/yr

VOC Emissions:
Emission Factor: 5.80 lb/10^6 ft^3 gas {AP-42, 1.4-1, Rev 10/92}
Fuel Consumption: 273 MMft^3/yr (Maximum Rated Design)
Calculations: 5.80 * lb/10^6 ft^3 gas * 273 MMft^3/yr * 0.0005 ton/lb = 0.79 ton/yr

CO Emissions:
Emission Factor: 35.0 lb/10^6 ft^3 gas {AP-42, 1.4-1, Rev 10/92}
Fuel Consumption 273 MMft^3/yr (Maximum Rated Design)
Calculations: 273 * MMft^3/yr * 35.0 lb/10^6 ft^3 gas * 0.0005 ton/lb = 4.78 ton/yr

SO_x Emissions:
Emission Factor: 0.60 lb/10^6 ft^3 gas {AP-42, 1.4-1, Rev 10/92}
Fuel Consumption: 273 MMft^3/yr
Calculations: 0.60 lb/10^6 ft^3 gas * 273 MMft^3/yr * 0.0005 ton/lb = 0.08 ton/yr

Veneer Dryer

TSP Emissions
Emission Factor: 0.50 lb/MSF {Information from Company, 1/26/94}
Hours of Operation 8760 hr/yr
Design Capacity: 20 MSF/hr
0.50 lb/MSF * 20.0 MSF/hr = 10.00 lb/hr {Permitted Allowable}
Calculations: 10.00 lb/hr * 8760 * 0.0005 ton/lb = 43.80 ton/yr
PM-10 Emissions:

Emission Factor: 0.50 lb/MSF {Information from Company, 1/26/94}
Hours of Operation 8760 hr/yr
Design Capacity: 20 MSF/hr
0.50 lb/MSF * 20.0 MSF/hr = 0.00 lb/hr Permitted Allowable}
Calculations: 10.00 lb/hr * 8760 * 0.0005 ton/lb =43.80 ton/yr

VOC Emissions:
Emission Factor: 2.94 lb/10^4 ft^2 {AFSSCC 3-07-007-15, pg 143}
Hours of Operation 8760 hr/yr
Design Capacity: 20 MSF/hr
2.94 lb/10^4 ft^2 *20.0 MSF/hr=5.88 lb/hr {Permitted Allowable}
Calculations: 5.88 lb/hr * 8760 * 0.0005 ton/lb = 25.75 ton/yr

Line 1 MDF Sander Baghouse
Hours of Operation: 8,500 hr/yr (Permitted Allowable)

TSP Emissions
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 48548 dscfm
0.005 gr/dscf * 48548 dscfm * 60 min/hr * 1 lb/7000gr =2.08 lb/hr (Permitted Allowable)
Calculations: 8500 hr/yr * 2.08 lb/hr * 0.0005 ton/lb = 8.84 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 48548 dscfm
0.005 gr/dscf * 48548 dscfm * 60 min/hr * 1 lb/7000gr =2.08 lb/hr (Permitted Allowable)
Calculations: 8500 hr/yr * 2.08 lb/hr * 0.0005 ton/lb = 8.84 ton/yr

Line 1 MDF Materials Handling Baghouse
Hours of Operation: 8,500 hr/yr (Permitted Allowable)

TSP Emissions
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44135 dscfm
0.005 gr/dscf * 44135 dscfm * 60 min/hr * 1 lb/7000gr =1.89 lb/h (Permitted Allowable)
Calculations: 8500 hr/yr * 1.89 lb/hr * 0.0005 ton/lb = 8.04 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44135 dscfm
0.005 gr/dscf * 44135 dscfm * 60 min/hr * 1 lb/7000gr =1.89 lb/hr (Permitted Allowable)
Calculations: 8500 hr/yr * 1.89 lb/hr * 0.0005 ton/lb = 8.04 ton/yr

Line 1 MDF Fiber Dryers
Hours of Operation: 8,500 hr/yr (Permitted Allowable)
Design Capacity: 100 MMBtu/hr * 1 ton/16MMBtu = 6.25 ton/hr {Face and Core Dryers}

TSP Emissions
Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 180000 dscfm {This includes all 4 stacks}
0.015 gr/dscf * 180000 dscfm* 60 min/hr*1 lb/7000gr=23.14 lb/hr Permitted Allowable)
Calculations: 8500 hr/yr * 23.14 lb/hr * 0.0005 ton/lb = 98.36 ton/yr

PM-10 Emissions:
Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 180000 dscfm {This includes all 4 stacks}
0.015 gr/dscf* 180000 dscfm* 60 min/hr* 1 lb/7000gr=23.14 lb/hr (Permitted Allowable)
Calculations: 8500 hr/yr * 23.14 lb/hr * 0.0005 ton/lb = 98.36 ton/yr

VOC Emissions:
Emission Factor: 2.30 lb/ton
Design Capacity: 57 ton/hr
2.30 lb/ton * 57 ton/hr = 131.10 lb/hr {Permitted Allowable for Face and Core Dryer)
Calculations: 8500 hr/yr * 131.10 lb/hr * 0.0005 ton/lb = 557.18 ton/yr
NO_x Emissions:

Emission Factor: 10.60 lb/ton {Information from Company, 2/9/95}
Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}
10.60 lb/ton * 6.25 ton/hr = 66.25 lb/hr
Calculations: 8500 hr/yr * 66.25 lb/hr * 0.0005 ton/lb = 281.56 ton/yr

SO_x Emissions:
Emission Factor: 0.075 lb/ton
Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}
0.075 lb/ton * 6 ton/hr = 0.47 lb/hr
Calculations: 8500 hr/yr * 0.47 lb/hr * 0.0005 ton/lb = 1.99 ton/yr

CO Emissions:
Emission Factor: 13.60 lb/ton
Design Capacity: 6.25 ton/hr {Information from Company, 2/9/95}
13.60 lb/ton * 6 ton/hr = 85.00 lb/hr
Calculations: 8500 hr/yr * 85.00 lb/hr * 0.0005 ton/lb = 361.25 ton/yr

Planer #3 Cyclone
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 21600 dscfm
0.03 gr/dscf * 21600 dscfm * 60 min/hr * 1 lb/7000 gr=5.55 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 5.55 lb/hr * 0.0005 ton/lb = 24.33 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 21600 dscfm
0.012 gr/dscf * 21600 dscfm * 60 min/hr * 1 lb/7000gr =2.22 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 2.22 lb/hr * 0.0005 ton/lb = 9.73 ton/yr

Planer #4 Cyclone
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 54000 dscfm
0.03 gr/dscf * 54000 dscfm * 60 min/hr* 1 lb/7000gr=13.89 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 13.89 lb/hr * 0.0005 ton/lb = 60.82 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 54000 dscfm
0.012 gr/dscf * 54000 dscfm * 60 min/hr * 1 lb/7000gr =5.55 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 5.55 lb/hr * 0.0005 ton/lb = 24.33 ton/yr

Planer Shavings Bin Cyclone
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscfm
0.03 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr = 1.39 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 1.39 lb/hr * 0.0005 ton/lb = 6.08 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscfm
0.012 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr =0.56 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.56 lb/hr * 0.0005 ton/lb = 2.43 ton/yr

Planer Chip Bin Cyclone

Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscf
0.03 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr = 1.39 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 1.39 lb/hr * 0.0005 ton/lb = 6.08 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscfm
0.012 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr = 0.56 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.56 lb/hr * 0.0005 ton/lb = 2.43 ton/yr

Sawmill Chip Bin Cyclone
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscfm
0.03 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr = 1.39 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 1.39 lb/hr * 0.0005 ton/lb = 6.08 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5400 dscfm
0.012 gr/dscf * 5400 dscfm * 60 min/hr * 1 lb/7000gr = 0.56 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.56 lb/hr * 0.0005 ton/lb = 2.43 ton/yr

Sawmill Sawdust Target Box
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.10 lb/BDT Oregon DEQ/AQ Permitting Inspection
Design Capacity: 4.9 BDT/hr {Information from Company, 7/12/95}
0.10 lb/BDT * 4.90 BDT/hr = 0.49 lb/hr
Calculations: 8760 hr/yr * 0.49 lb/hr * 0.0005 ton/lb = 2.15 ton/yr

PM-10 Emissions:
Emission Factor: 0.05 lb/BDT Oregon DEQ/AQ Permitting Inspection
Design Capacity: 4.9 BDT/hr {Information from Company, 7/12/95}
0.05 lb/BDT * 4.90 BDT/hr = 0.25 lb/hr
Calculations: 8760 hr/yr * 0.25 lb/hr * 0.0005 ton/lb = 1.07 ton/yr

Sawmill Drying Kilns
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 0.20 lb/MBF {Information from Company, 7/12/95}
Design Capacity: 186, 457 MBF/yr {NCASI, ltr 3/18/94 from David Word}
0.20 lb/MBF * 186457 MBF/yr 37291.4 lb/MBF
Calculations: 0.20 lb/MBF * 186457 MBF/yr * 0.0005 ton/lb = 18.65 ton/yr

PM-10 Emissions:
Emission Factor: 0.20 lb/MBF {Information from Company, 7/12/95}
Design Capacity: 186,457 MBF/yr {NCASI, ltr 3/18/94 from David Word}
0.20 lb/MBF * 186457 MBF/yr 37291.4 lb/MBF
Calculations: 0.20 lb/MBF * 186457 MBF/yr * 0.0005 ton/lb = 18.65 ton/yr

VOC Emissions:
Emission Factor: 1.70 lb/MBF {NCASI, TB No. 718, July 1996}
Design Capacity: 186,457 MBF/yr {based on average of species tests}
1.70 lb/MBF * 186457 MBF/yr316976.9 lbs/MBF
Calculations: 1.70 lb/MBF * 186457 MBF/yr * 0.0005 ton/lb = 158.49 ton/yr

Plywood Chip Bin Cyclone

Hours of Operation: 8,760 hr/yr

TSP Emissions:
Emission Factor: 0.03 gr/dscf {Information from Company, 1/26/94}{Permitted Allowable}
Design Capacity: 5000 dscfm de minimus Change Notification 2/26/97
0.03 gr/dscf * 5000 dscfm * 60 min/hr * 1 lb/7000gr =1.30 lb/hr
Calculations: 8760 hr/yr * 1.30 lb/hr * 0.0005 ton/lb = 5.69 ton/yr

PM-10 Emissions:
Emission Factor: 0.012 gr/dscf {Information from Company, 1/26/94}
Design Capacity: 5000 dscfm
0.012 gr/dscf * 5000 dscfm * 60 min/hr * 1 lb/7000gr = 0.52 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.52 lb/hr * 0.0005 ton/lb = 2.28 ton/yr - Permit #2667-07}

Plywood Fines Target Box
Hours of Operation: 8,760 hr/yr

TSP Emissions:
Emission Factor: 0.03 gr/dscf de minimus change notification 2/26/97
Design Capacity: 2500 dscfm
0.03 gr/dscf * 2500 dscfm * 60 min/hr * 1 lb/7000gr = 1.30 lb/hr
Calculations: 8760 hr/yr * 1.30 lb/hr * 0.0005 ton/lb = 5.69 ton/yr

PM-10 Emissions:
Emission Factor: 0.014 gr/dscf de minimus change notification 2/26/97
Design Capacity: 2500 dscfm
0.014 gr/dscf * 2500 dscfm * 60 min/hr * 1 lb/7000gr =0.852 lb/hr
Calculations: 8760 hr/yr * 0.52 lb/hr * 0.0005 ton/lb = 2.28 ton/yr

Plywood Sander Dust Baghouse
Hours of Operation: 8,760 hr/yr

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 31488 dscfm
0.005 gr/dscf * 31488 dscfm * 60 min/hr * 1 lb/7000gr =1.35 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 1.35 lb/hr * 0.0005 ton/lb = 5.91 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 31488 dscfm
0.005 gr/dscf * 31488 dscfm * 60 min/hr * 1 lb/7000gr =1.35 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 1.35 lb/hr * 0.0005 ton/lb = 5.91 ton/yr

Plywood 18" Hog Baghouse
Hours of Operation: 8,760 hr/yr

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.53 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.53 ton/yr

Plywood 30" Hog Baghouse
Hours of Operation: 8,760 hr/yr

TSP Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.53 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8760 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.53 ton/yr

Line 1 MDF N. Sander Baghouse #7
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 49482 dscfm
0.005 gr/dscf * 49482 dscfm * 60 min/hr * 1 lb/7000gr = 2.12 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 2.12 lb/hr * 0.0005 ton/lb = 9.01 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 49482 dscfm
0.005 gr/dscf * 49482 dscfm * 60 min/hr * 1 lb/7000gr =2.12 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 2.12 lb/hr * 0.0005 ton/lb = 9.01 ton/yr

Line 1 MDF S. Sander Baghouse #8
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 49482 dscfm
0.005 gr/dscf * 49482 dscfm * 60 min/hr * 1 lb/7000gr 2.12 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 2.12 lb/hr * 0.0005 ton/lb = 9.01 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 49482 dscfm
0.005 gr/dscf * 49482 dscfm * 60 min/hr * 1 lb/7000gr =2.12 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 2.12 lb/hr * 0.0005 ton/lb = 9.01 ton/yr

Line 1 MDF Board Trim Baghouse #10
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 4498 dscfm
0.005 gr/dscf * 4498 dscfm * 60 min/hr * 1 lb/7000gr = 0.19 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.19 lb/hr * 0.0005 ton/lb = 0.82 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 4498 dscfm
0.005 gr/dscf * 4498 dscfm * 60 min/hr * 1 lb/7000gr =0.19 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.19 lb/hr * 0.0005 ton/lb = 0.82 ton/yr

Line 1 MDF Sanderdust Fuel Baghouse
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.46 ton/yr
PM-10 Emissions:

Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscf
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr =0.58 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.46 ton/yr

Line 1 MDF Booksaw Baghouse #5
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr =1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

Line 1 MDF Sander Hog Baghouse #6
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

Line 1 MDF Metering Bin Baghouse #1
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

Line 1 MDF Felter Baghouse #1
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

Line 1 MDF Felter Baghouse #2

Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 44983 dscfm
0.005 gr/dscf * 44983 dscfm * 60 min/hr * 1 lb/7000gr = 1.93 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 1.93 lb/hr * 0.0005 ton/lb = 8.19 ton/yr

Line 1 MDF Blr Sndrdst Boiler Baghouse #11
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr = 0.58 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.46 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 13495 dscfm
0.005 gr/dscf * 13495 dscfm * 60 min/hr * 1 lb/7000gr = 0.58 lb/hr {Permitted Allowable}
Calculations: 8500 hr/yr * 0.58 lb/hr * 0.0005 ton/lb = 2.46 ton/yr

Line 1 MDF Forming and Finishing
Press Vents (6 fans)
Board Cooler Fans (10 fans)
Press Unload Fans (3 fans)
Hours of Operation: 8,500 hr/yr {Permitted Allowable}

TSP Emissions:
Emission Factor: 25.80 lb/hr {Information from Company, 2/9/95} {Permitted Allowable}
Calculations: 8500 hr/yr * 25.80 lb/hr * 0.0005 ton/lb = 109.65 ton/yr

PM-10 Emissions:
Emission Factor: 9.50 lb/hr {Information from Company, 2/9/95}{Permitted Allowable}
Calculations: 8500 hr/yr * 9.50 lb/hr * 0.0005 ton/lb = 40.38 ton/yr

VOC Emissions:
Emission Factor: 13.40 lb/hr {Information from Company, 2/9/95} {Permitted Allowable}
Calculations: 8500 hr/yr * 13.40 lb/hr * 0.0005 ton/lb = 56.95 ton/yr

Plywood Boiler #2 (20,000 pph)
Hours of Operation: 8,760 hr/yr

TSP Emissions
Emission Factor: 3.00 lb/MMcf {AFSSCC 1-02-006-02, pg23}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
3.00 lb/MMcf * 283 MMcf/yr * 1 yr/8760 hr = 0.10 lb/hr
{Permitted Allowable}
Calculations: 8760 hr/yr * 0.10 lb/hr * 0.0005 ton/lb = 0.42 ton/yr

PM-10 Emissions:
Emission Factor: 3.00 lb/MMcf {AFSSCC 1-02-006-02, pg23}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
3.00 lb/MMcf * 283 MMcf/yr * 1 yr/8760 hr = 0.10 lb/hr
{Permitted Allowable}
Calculations: 8760 hr/yr * 0.10 lb/hr * 0.0005 ton/lb = 0.42 ton/yr

NO_x Emissions:

Emission Factor: 140.00 lb/MMcf {AP-42, 1.4-2, Rev 10/92}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
Calculations: 140.00 lb/MMcf * 283 MMcf/yr * 0.0005 ton/lb = 19.81 ton/yr

VOC Emissions:
Emission Factor: 5.80 lb/MMcf {AP-42, 1.4-3, Rev 10/92}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
Calculations: 5.80 lb/MMcf * 283 MMcf/yr * 0.0005 ton/lb = 0.82 ton/yr

CO Emissions:
Emission Factor: 35.00 lb/MMcf {AP-42, 1.4-2, Rev 10/92}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
Calculations: 35.00 lb/MMcf * 283 MMcf/yr * 0.0005 ton/lb = 4.95 ton/yr

SO_x Emissions:
Emission Factor: 0.60 lb/MMcf {AP-42, 1.4-2, Rev 10/92}
Fuel Consumption: 283 MMcf/yr {Maximum Rated Design}
Calculations: 0.60 lb/MMcf * 283 MMcf/yr * 0.0005 ton/lb = 0.08 ton/yr

Line 2 MDF Fiber Dryers
Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 85 MMBtu/hr * 1 ton/16MMBtu = 5.31 ton/hr
5.31 ton/hr * 8760 hr/yr = 46,500 ton/yr

TSP Emissions
Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 140000 dscfm {This includes all 4 stacks}
0.015 gr/dscf * 140000 dscfm * 60 min/hr * 1 lb/7000gr = 18.0 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 18.0 lb/hr * 0.0005 ton/lb = 78.8 ton/yr

PM-10 Emissions:
Emission Factor: 0.015 gr/dscf {Information from Company, 2/9/95}
Design Capacity: 140000 dscfm {This includes all 4 stacks}
0.015 gr/dscf * 140000 dscfm * 60 min/hr * 1 lb/7000gr = 18.0 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 18.0 lb/hr * 0.0005 ton/lb = 78.8 ton/yr

VOC Emissions:
Emission Factor: 2.30 lb/ton
Design Capacity: 33.1 ton/hr
2.30 lb/ton * 33.1 ton/hr = 76.1 lb/hr
{Permitted Allowable for Core Dryer)
Calculations: 8760 hr/yr * 76.1 lb/hr * 0.0005 ton/lb = 333.0 ton/yr

NO_x Emissions:
Control Efficiency: 23% FGR/LNB (Efficiency provided by Plum Creek on 08/03/99)
Emission Factor: 10.60 lb/ton {Information from Company, 2/9/95}
Design Capacity: 5.31 ton/hr {Information from Company, 2/9/95}
10.60 lb/ton * 5.31 ton/hr = 56.3 lb/hr
Calculations: 8760 hr/yr * 56.3 lb/hr * 0.0005 ton/lb = 247.0 ton/yr
247.0 ton/yr * (1.0 – 0.23) = 190.2 ton/yr

SO_x Emissions:
Emission Factor: 0.15 lb/ton
Design Capacity: 46,500 ton/yr {Information from Company, 2/9/95}
0.15 lb/ton * 46,500 ton/yr = 6975.0 lb/yr
Calculations: 6975.0 lb/yr * 0.0005 ton/lb = 3.49 ton/yr

CO Emissions:
Emission Factor: 13.60 lb/ton
Design Capacity: 46,500 ton/yr {Information from Company, 2/9/95}
13.60 lb/ton * 46,500 ton/yr = 632400 lb/yr
Calculations: 632400 lb/yr * 0.0005 ton/lb = 316.2 ton/yr

Line 2 Press Emissions

Hours of Operation: 8,760 hr/yr
Additional flow to ESP = 25000 dscfm

PM Emissions

Emission Factor: 0.015 gr/dscf {Permit Limit}
0.015 gr/dscf * 25000 dscfm * 60 min/hr * 1 lb/7000gr = 3.21 lb/hr
Calculations: 8760 hr/yr * 3.21 lb/hr * 0.0005 ton/lb = 14.1 ton/yr

PM-10 Emissions:

Emission Factor: 0.015 gr/dscf {Permit Limit}
0.015 gr/dscf * 25000 dscfm * 60 min/hr * 1 lb/7000gr = 3.21 lb/hr
Calculations: 8760 hr/yr * 3.21 lb/hr * 0.0005 ton/lb = 14.1 ton/yr

VOC Emissions:

Emission Factor: 2.0 lb/hr {based on industry data}
2.0 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.76 ton/yr

Line 2 North Sander Baghouse

Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 50000 cfm

PM Emissions

Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

PM-10 Emissions:

Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

Line 2 South Sander Baghouse

Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 50000 cfm

PM Emissions

Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

PM-10 Emissions:

Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14lb/hr * 0.0005 ton/lb = 9.37 ton/yr

Line 2 Reject Baghouse

Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 50000 cfm

PM Emissions

Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

Line 2 Forming Baghouse
Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 50000 cfm

PM Emissions
Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 50000 dscfm
0.005 gr/dscf * 50000 dscfm * 60 min/hr * 1 lb/7000gr = 2.14 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 2.14 lb/hr * 0.0005 ton/lb = 9.37 ton/yr

Line 2 Coen Fuel Bin Baghouse
Hours of Operation: 8,760 hr/yr (Permitted Allowable)
Design Capacity: 10000 cfm

PM Emissions
Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 10000 dscfm
0.005 gr/dscf * 10000 dscfm * 60 min/hr * 1 lb/7000gr = 0.43 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 0.43 lb/hr * 0.0005 ton/lb = 1.88 ton/yr

PM-10 Emissions:
Emission Factor: 0.005 gr/dscf {Basis for limit}
Design Capacity: 10000 dscfm
0.005 gr/dscf * 10000 dscfm * 60 min/hr * 1 lb/7000gr = 0.43 lb/hr
(Permitted Allowable)
Calculations: 8760 hr/yr * 0.43 lb/hr * 0.0005 ton/lb = 1.88 ton/yr

Line 2 MDF Hot Oil Natural Gas Burner
Hours of Operation: 8,760 hr/yr
The 17.7 MMBtu/hr natural gas burner will burn 18,436 scf/hr of natural gas or 161.5 mmcf/yr.

PM Emissions
Emission Factor: 6.2 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}
Design Capacity: 6.2 lb/mmcf * 18436 scf/yr * 1 mmcf/1000000 scf = 0.11 lb/hr
0.11 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.50 ton/yr

PM-10 Emissions:
Emission Factor: 6.2 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}
Design Capacity: 6.2 lb/mmcf * 18436 scf/yr * 1 mmcf/1000000 scf = 0.11 lb/hr
0.11 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.50 ton/yr

VOC Emissions:
Emission Factor: 5.8 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}
Design Capacity: 5.8 lb/mmcf * 18436 scf/yr * 1 mmcf/1000000 scf = 0.107 lb/hr
0.107 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.47 ton/yr

NO_x Emissions:

Emission Factor: 100 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}

Design Capacity: 100 lb/mmcf * 18436 scf/yr * 1 mmcf/1000000 scf = 1.84 lb/hr

1.84 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.08 ton/yr

CO Emissions:

Emission Factor: 35 lb/mmcf {AP-42, Table 1.4-1, Rev. 10/92}

Design Capacity: 35 lb/mmcf * 18436 scf/yr * 1 mmcf/1000000 scf = 0.645 lb/hr

0.645 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.83 ton/yr

B. Estimate of Maximum Fugitive Emissions from Facility

	TSP (TPY)	PM-10 (TPY)
Planer Process		
Shaving Bin Loadout	15.8	9.0
Chip Bin Loadout	0.5	0.24
Sawmill Process		
Debarker	4.4	2.0
Block Saw	6.7	4.0
Hog (wet)	0.5	0.2
Chip Bin	3.8	2.3
Sawdust Bin	11.0	6.4
Plywood Veneer Prep.		
Debarker	6.3	2.8
Block saw	2.4	1.4
Hog (wet)	0.5	0.2
Chip Bin Loadout	4.2	2.6
Wet Fuel Pile	3.3	2.0
MDF Materials Handling	7.24	3.45
Hog Boiler Fuel Handling	1.35	0.63
Mobile Sources		
Log Trucks	17.2	6.2
Chip, Shaving, Sawdust Trucks	19.2	6.9
Lumber Trucks	5.6	2.0
Le Tourneaus	2.8	1.0
Front End Loaders (MDF)	2.2	0.8
Front End Loaders (Log Yard)	7.5	2.7
Dump Trucks	8.1	2.9
Employee Vehicles	7.2	2.6
Total Fugitive Estimate	137.8	62.3

V. Existing Air Quality and Monitoring Requirements

The Columbia Falls area is designated as a nonattainment area for PM_{10}. However, for the other criteria pollutants, the Columbia Falls Area is attainment/unclassified. As mentioned previously, based on the PSD SERs, the 1989 MDF Coen Burner Project would have been subject to PSD permitting for CO and NO_x; the 1990 MDF Line Speed Up Project, for PM, PM-10, and VOCs; and the 1992 MDF Heating and Humidification Project, for PM, PM-10, and VOCs. As the Columbia Falls area (including the Plum Creek facility) was designated as a nonattainment area for PM-10 by EPA on November 15, 1990, the 1992 project would have triggered nonattainment area NSR permitting for PM-10. The 1992 project is complying with the requirements for nonattainment area NSR in this permitting action.

As five previous PSD permits have been issued to Plum Creek, a large portion of the required air quality modeling had already been performed. For example, the CO modeling conducted for Permit #2667-11 would meet all necessary requirements for demonstrating compliance with the CO NAAQS/MAAQS and Air Quality Related Values (AQRVs). Similarly, the VOC ambient analysis conducted for Permit #2667-11 would meet all PSD requirements for VOCs. Additional PM modeling was not required due to the extensive modeling that has been performed in the Columbia Falls area for the PM-10 SIP (which included Plum Creek).

The 1989 Coen Burner Project would have triggered PSD modeling requirements for NO_x emissions. Because this action would have set the baseline date in 1989 instead of 1994 when Permit Application #2667-04 was submitted, additional analyses were required for NO_x emissions. Plum Creek submitted modeling to comply with these requirements, including a NO_x growth analysis from 1989 until the submittal of Permit Application #2667-09 (submitted as a complete application on October 8, 1999) and a NO_x Class I/Class II increment analysis. The modeling was performed in accordance with the methodology outlined in EPA's Draft New Source Review Workshop Manual dated October 1990 and Appendix W of 40 CFR 51, Guideline of Air Quality Models.

The ISC3 model was used along with five years of surface meteorological data (1987-1991) collected at the Kalispell Airport National Weather Station and the corresponding upper air data collected at the Spokane National Weather Station. The same receptor grids used in previous modeling submittals were again used. Receptor elevations in the immediate vicinity of the Plum Creek plant were obtained from digital elevation model (DEM) files.

The NO_x growth analysis included emissions from permitted sources and from small area sources such as vehicle emissions, and residential and commercial heating from 1989-1999. The area source inventory was based on the Department's inventory for the Columbia Falls nonattainment area State Implementation Plan (SIP). The estimated NO_x emissions increase from minor sources in the Columbia Falls area was 15.14 tons per year.

The peak modeled Class II NO_x impact from all PSD increment consuming sources was 4.75 $\mu g/m^3$, which corresponds to an NO_2 impact of 3.56 $\mu g/m^3$ (based on the Ambient Ratio Method 4.75 $\mu g/m^3$ * 0.75). The peak impact occurred at a receptor on Plum Creek's fenceline. The Class II NO_2 increment is 25 $\mu g/m^3$.

The results of the Class I modeling showed that the peak annual NO_2 impact was 0.23 $\mu g/m^3$ (based on the Ambient Ratio Method 0.31 $\mu g/m^3$ * 0.75). The peak impact occurred at a receptor in Glacier National Park, due north of the Plum Creek facility. The Class I NO_2 increment is 2.5$\mu g/m^3$.

The overall impact of changing the NO_2 PSD baseline date from 1994 to 1989 had very little impact on the Columbia Falls area. Predicted impacts on AQRVs were low as shown in the 1999 permit application. Therefore, there is no benefit to requiring a revised AQRV analysis for the modeling demonstration. Plum Creek demonstrated compliance with the PSD Class I/Class II increments.

VI. Ambient Air Impact Analysis

The Department determined, based on various analyses provided by Plum Creek (as described in the previous section), that the impact from this permitting action will not cause or contribute to a violation of an ambient air quality standard, and no ambient standard or increment was violated at the time the projects were implemented. The Plum Creek PSD application (including analyses) was also sent to the NPS, the United States Forest Service (USFS), and EPA for review.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Plum Creek Manufacturing, L.P.
Columbia Falls Facility
P.O. Box 1990
Columbia Falls, Montana 59912-1990

Air Quality Permit Number*:* 2667-11

Preliminary Determination on Permit Issued: December 6, 2002
Department Decision on Permit Issued: December 31, 2002
Final Decision Issued: January 16, 2003

1. *Legal Description of Site:* The Plum Creek Manufacturing, L.P. (Plum Creek) – Columbia Falls facility is located in Section 7 and the SW ¼ of Section 8, Township 30 North, Range 20 West, in Flathead County, Montana.

2. *Description of Project:* Plum Creek applied for a retroactive New Source Review (NSR)/ Prevention of Significant Deterioration of Air Quality (PSD) to evaluate and permit 3 historical projects at the Columbia Falls facility. These projects include: the 1989 MDF Coen Burner Project, the 1990 MDF Line Speed Up Project, and the 1992 MDF Heating and Humidification Project. In addition, the 1992 MDF Heating and Humidification Project would be evaluated with respect to nonattainment area NSR permitting for PM-10.

3. *Objectives of Project:* The permitting action would resolve permitting issues related to the above-mentioned projects, which were not permitted properly at the time of construction.

4. *Alternatives Considered:* The no-action alternative was considered. This alternative would deny issuance of the air quality preconstruction permit, the application for which was requested by the Department to resolve permitting issues. This alternative was dismissed because it would not improve air quality and would only further complicate the situation by leaving the 1989 MDF Coen Burner Project, the 1990 MDF Line Speed Up Project, and the 1992 MDF Heating and Humidification Project with a lack of appropriate permitting. In addition, Plum Creek demonstrated compliance with all applicable rules and standards as required for permit issuance.

5. *A Listing of Mitigation, Stipulations and Other Controls:* A listing of the enforceable permit conditions and a permit analysis, including a Best Available Control Technology (BACT) analysis, would be contained in Permit #2667-11.

6. *Regulatory Effects of Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action alternative" was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats				✔		yes
B	Water Quality, Quantity and Distribution				✔		yes
C	Geology and Soil Quality, Stability and Moisture				✔		yes
D	Vegetation Cover, Quantity and Quality				✔		yes
E	Aesthetics				✔		yes
F	Air Quality				✔		yes
G	Unique Endangered, Fragile or Limited Environmental Resources				✔		yes
H	Demands on Environmental Resources of Water, Air and Energy				✔		yes
I	Historical and Archaeological Sites				✔		yes
J	Cumulative and Secondary Impacts				✔		yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

No additional impact on terrestrial or aquatic habitat would be expected from this permitting action because it addresses an existing source.

B. Water Quality, Quantity and Distribution

This permitting action would not change the water quality, quantity, and distribution. There would be no discharges to groundwater or surface water associated with this permitting action.

C. Geology and Soil Quality, Stability and Moisture

The actions addressed in this permit would not change the soil stability or geologic substructure. The proposed changes would not result in impacts to productivity or fertility at or near the site. No unique geologic or physical features would be disturbed. Therefore, no impact to geology or soil quality, stability, and moisture would occur.

D. Vegetation Cover, Quantity and Quality

This permitting action would not cause changes in vegetation, cover, quantity, or quality because it addresses an existing source.

E. Aesthetics

Issuance of this permit would not cause changes in aesthetics, since the Department is permitting an existing source.

F. Air Quality

Analyses were submitted by Plum Creek to demonstrate that the historic projects addressed by this permitting action did not cause or contribute to any ambient air quality violations, and that the facility currently is in compliance with ambient air quality standards. As this action addresses existing sources at an existing facility, no impact on air quality is expected. A detailed discussion of the potential air impacts is contained in Sections V and VI or the permit analysis.

G. Unique Endangered, Fragile or Limited Environmental Resources

Issuance of this permit would not affect unique endangered, fragile, or limited environmental resources, since it would be permitting a facility that already exists.

H. Demands on Environmental Resource of Water, Air and Energy

There will be no overall impacts on the environmental resources of water, air, and energy since this permitting action addresses existing sources.

I. Historical and Archaeological Sites

Issuance of this permit would not affect historical or archaeological sites, since the Department would be permitting a facility that already exists.

J. Cumulative and Secondary Impacts

No cumulative or secondary impacts are expected to result from this permitting action because it addresses a facility that already exists. Air pollution from the facility would be controlled by Department-approved BACT and conditions in Permit #2667-11. The Department believes that this facility would operate in compliance with all applicable rules and regulations as outlined in Permit #2667-11.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no action alternative" was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				✔		Yes
B	Cultural Uniqueness and Diversity				✔		Yes
C	Local and State Tax Base and Tax Revenue				✔		Yes
D	Agricultural or Industrial Production				✔		Yes
E	Human Health				✔		Yes
F	Access to and Quality of Recreational and Wilderness Activities				✔		Yes
G	Quantity and Distribution of Employment				✔		Yes
H	Distribution of Population				✔		Yes
I	Demands for Government Services			✔			Yes
J	Industrial and Commercial Activity				✔		yes
K	Locally Adopted Environmental Plans and Goals			✔			yes
L	Cumulative and Secondary Impacts				✔		yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

This permitting action would not have any impact on social structures and mores because it addresses a facility and processes within that facility that already exist.

B. Cultural Uniqueness and Diversity

There would be no change to the cultural uniqueness and diversity of the area as a result of this permitting action because it addresses a facility and processes within that facility that already exist.

C. Local and State Tax Base and Tax Revenue

This permitting action would have no effect on the local and state tax base and tax revenue because no new employees are being added and no new equipment is being permitted (permit addresses existing equipment).

D. Agricultural or Industrial Production

This permitting action would not impact local agricultural or industrial production because it addresses a facility and processes within that facility that already exist.

E. Human Health

Human health would not be affected by this permitting action. Permit #2667-11 incorporates conditions to ensure that the Plum Creek facility will be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

This permitting action would not result in any changes in access to or quality of recreational and wilderness activities because it addresses a facility and processes within that facility that already exist.

G. Quantity and Distribution of Employment

No new employees would be hired as a result of this permitting action. Therefore, there would be no impact to the quantity and distribution of employment.

H. Distribution of Population

The distribution of population would not change as a result of this permitting action.

I. Demands of Government Services

Government services would be required for acquiring the appropriate permits from government agencies. Demands for government services would be minor.

J. Industrial and Commercial Activity

Industrial and commercial activity would not be affected by this permitting action because it addresses a facility and processes within that facility that already exist.

K. Locally Adopted Environmental Plans and Goals

The Department considered locally adopted environmental plans and goals in issuing Permit #2667-11. The Columbia Falls area was designated as a PM-10 nonattainment area on November 15, 1990. Columbia Falls has an approved State Implementation Plan (SIP) to address the emission sources of PM-10 in the area. The Department has taken the PM-10 status of Columbia Falls into consideration while drafting Permit #2667-11, specifically in the nonattainment area NSR analysis for the 1992 MDF Heating and Humidification Project. Offsets were required as a part of that analysis, and were obtained (and made federally enforceable when necessary) primarily through actual emission reductions already in place at the Columbia Falls facility. Therefore, the impacts from this project on the Locally Adopted Environmental Plans and Goals would be minor.

L. Cumulative and Secondary Impacts

No cumulative or secondary impacts are expected to result from this project. Air pollution from the facility would be controlled by conditions in Permit #2667-11. The Department believes that this facility would operate in compliance with all applicable rules and regulations as outlined in Permit #2667-11.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: This permitting action does not include any additional air pollution emissions above current levels; it was requested to resolve an administrative issue. Therefore, an EA is the appropriate level of analysis.

Other groups or agencies contacted or which may have overlapping jurisdiction: Department of Environmental Quality – Air and Waste Management Bureau, National Park Service, United States Forest Service, United States Environmental Protection Agency (EPA).

Individuals or groups contributing to this EA: Department of Environmental Quality – Air and Waste Management Bureau

EA prepared by: Debbie Skibicki
Date: November 27, 2002